

Claims

- [c1] 1.A rotor assembly comprising:
a rotor having an outer circumference and a longitudinal axis;
and
a plurality of magnet members secured to said outer circumference, each of said plurality of magnet members having a degree of curvature about said longitudinal axis, wherein a sum of said degrees of curvature is greater than 355.5 degrees.
- [c2] 2.The rotor assembly of claim 1, wherein said degree of curvature for at least two of said plurality of magnet members is a first degree of curvature and a second degree of curvature, and wherein said first degree of curvature is greater than said second degree of curvature.
- [c3] 3.The rotor assembly of claim 2, wherein each of said at least two of said plurality of magnet members has first and second ends, wherein said first end is opposite to said second end, wherein said first degree of curvature is disposed along said first end, and wherein said second degree of curvature is disposed along said second end.
- [c4] 4.The rotor assembly of claim 1, wherein each of said plurality of magnet members has a first end and a second end opposite to said first end, wherein said first end has a first degree of

curvature and said second end has a second degree of curvature, wherein a first sum of said first degrees of curvature is greater than 360 degrees, and wherein a second sum of said second degrees of curvature is less than 360 degrees.

- [c5] 5.The rotor assembly of claim 1, wherein said plurality of magnet members is an even number of magnet members.
- [c6] 6.The rotor assembly of claim 3, wherein said first and second ends are parallel to each other.
- [c7] 7.The rotor assembly of claim 3, wherein each of said first ends is disposed adjacent to one of said second ends.
- [c8] 8.The rotor assembly of claim 1, wherein said outer circumference has a first radius of curvature, wherein each of said plurality of magnet members has an inner face having a second radius of curvature, and wherein said first and second radii of curvature are about equal.
- [c9] 9.A rotor assembly comprising:
a rotor having an outer wall with a circumference; and
a magnet separated into a plurality of members that are secured to said outer wall and circumscribe said circumference, each of said plurality of members having a first end and a second end opposing said first end,
wherein each of said first ends is disposed adjacent to one of said second ends, and wherein at least one of said first ends

is misaligned with one of said second ends along said circumference.

- [c10] 10.The rotor assembly of claim 9, wherein said first and second ends are parallel to each other.
- [c11] 11.The rotor assembly of claim 9, wherein said at least one of said first ends has a first degree of curvature about said circumference, wherein said one of said second ends has a second degree of curvature about said circumference, and wherein said first degree of curvature is greater than said second degree of curvature.
- [c12] 12.The rotor assembly of claim 9, wherein said first end has a first degree of curvature about said circumference, wherein said second end has a second degree of curvature about said circumference, wherein a first sum of said first degrees of curvature is greater than 360 degrees, and wherein a second sum of said second degrees of curvature is less than 360 degrees.
- [c13] 13.The rotor assembly of claim 9, wherein said plurality of members is an even number of members.
- [c14] 14.A rotor assembly comprising:
a rotor having a longitudinal axis and an outer wall with a circumference; and
a plurality of magnet members secured to said outer wall

about said circumference, each of said magnet members having opposing sides and a center axis, said center axis being parallel to said longitudinal axis, wherein at least two of said plurality of magnet members have said opposing sides being nonparallel along said center axis.

[c15] 15.The rotor assembly of claim 14, wherein said at least two of said plurality of magnet members have a trapezoidal shape.

[c16] 16.The rotor assembly of claim 14, wherein said opposing sides are first and second sides, wherein said first side forms a first angle with said center axis, wherein said second side forms a second angle with said center axis, wherein each of said first sides of said plurality of magnet members abuts another of said first sides of said plurality of magnet members, and wherein each of said second sides of said plurality of magnet members abuts another of said second sides of said plurality of magnet members.

[c17] 17.The rotor assembly of claim 14, wherein said plurality of magnet members is an even number of magnet members.

[c18] 18.The rotor assembly of claim 16, wherein said first and second angles are equal.

[c19] 19.The rotor assembly of claim 14, wherein each of said plurality of magnet members has opposing third and fourth sides, and wherein said third and fourth sides are parallel to

each other.

[c20] 20. The rotor assembly of claim 19, wherein each of said third sides of said plurality of magnet members is disposed adjacent to one of said fourth sides of said plurality of magnet members.

[c21] 21. The rotor assembly of claim 14, wherein said circumference of said outer wall has a first radius of curvature, wherein each of said plurality of magnet members has an inner face having a second radius of curvature, and wherein said first and second radii of curvature are about equal.

[c22] 22. A rotor assembly for a magnetic motor comprising:
a rotor having a longitudinal axis and a circumferential wall;
and
a magnet secured about said circumferential wall and separated into a plurality of members along separation lines, each of said plurality of members being arcuate and having a center axis parallel to said longitudinal axis, wherein each of said plurality of members abuts another of said plurality of members, and wherein at least one of said separation lines is nonparallel to one of said center axes.

[c23] 23. The rotor assembly of claim 22, wherein each of said plurality of members has first and second side walls, wherein said first side wall forms a first angle with said center axis,

wherein said second side wall forms a second angle with said center axis, wherein each of said first side walls of said plurality of members abuts another of said first side walls of said plurality of members, and wherein each of said second side walls of said plurality of members abuts another of said second side walls of said plurality of members.

- [c24] 24.The rotor assembly of claim 22, wherein said plurality of members is an even number of members.
- [c25] 25.The rotor assembly of claim 23, wherein said first and second angles are equal.
- [c26] 26.The rotor assembly of claim 22, wherein each of said plurality of members has a first end wall and a second end wall, and wherein said first and second end walls are parallel to each other.
- [c27] 27.The rotor assembly of claim 22, wherein each of said plurality of members has a first end wall having a first length and a second end wall having a second length, and wherein each of said first end walls of said plurality of members is disposed adjacent to at least one of said second end walls of said plurality of members.
- [c28] 28.The rotor assembly of claim 22, wherein at least two of said plurality of members have a trapezoidal shape.

- [c29] 29. The rotor assembly of claim 28, wherein said trapezoidal shape is isosceles.
- [c30] 30. The rotor assembly of claim 22, wherein said circumferential wall has a first radius of curvature, wherein each of said plurality of members has an inner face having a second radius of curvature, and wherein said first and second radii of curvature are about equal.
- [c31] 31. A magnetic motor comprising:
a stator having an inner wall;
a rotor operably connected to said stator and having a longitudinal axis and an outer wall; and
a plurality of magnet members secured to either said inner wall of said stator or said outer wall of said rotor, each of said plurality of magnet members having side walls that oppose each other,
wherein said plurality of magnet members circumscribes either said inner wall of said stator or said outer wall of said rotor, wherein pairs of said side walls abut against each other, and wherein at least one of said pairs of side walls are nonparallel to said longitudinal axis of said rotor.
- [c32] 32. The motor of claim 31, wherein said side walls are first and second side walls of each of said plurality of magnet members, wherein each of said plurality of magnet members has a center axis that is parallel to said longitudinal axis of

said rotor, wherein said first side wall forms a first angle with said center axis, wherein said second side wall forms a second angle with said center axis, wherein each of said first side walls of said plurality of magnet members abuts another of said first side walls of said plurality of magnet members, and wherein each of said second side walls of said plurality of magnet members abuts another of said second side walls of said plurality of magnet members.

[c33] 33.The motor of claim 31, wherein said plurality of magnet members is an even number of magnet members.

[c34] 34.The motor of claim 32, wherein said first and second angles are equal.

[c35] 35.The motor of claim 32, wherein each of said plurality of magnet members has a first end wall and a second end wall, and wherein said first and second end walls are parallel to each other.

[c36] 36.The motor of claim 32, wherein each of said magnet members has opposing first and second end walls, wherein said first end wall has a first length and said second end wall has a second length, and wherein each of said first end walls of said plurality of magnet members is disposed adjacent to at least one of said second end walls of said plurality of magnet members.

- [c37] 37.The motor of claim 31, wherein at least two of said plurality of magnetic members have a trapezoidal shape.
- [c38] 38.The motor of claim 37, wherein said trapezoidal shape is isosceles.
- [c39] 39.The motor of claim 31, wherein either said outer wall of said rotor or said inner wall of said stator has a first radius of curvature, wherein each of said plurality of magnet members has a second radius of curvature, and wherein said first and second radii of curvature are about equal.
- [c40] 40.A method of assembling a rotor comprising:
forming a plurality of magnet members;
positioning said plurality of magnet members about a circumference of said rotor to circumscribe said circumference, said plurality of magnet members having at least one gap therebetween; and
applying an axial force to each of said plurality of magnet members, wherein
said axial force causes said plurality of magnet members to slide together until said at least one gap is eliminated.
- [c41] 41.The method of claim 40, further comprising applying a radial force to said plurality of magnet members.
- [c42] 42.The method of claim 40, further comprising applying an adhesive to said circumference prior to positioning said

plurality of magnet members about said circumference.

- [c43] 43.The method of claim 40, wherein the step of forming said plurality of magnet members comprises forming at least two magnet members having opposing sides being nonparallel along a longitudinal axis of said rotor.
- [c44] 44.The method of claim 43, wherein said plurality of magnet members have a trapezoidal shape.
- [c45] 45.The method of claim 44, wherein said trapezoidal shape is isosceles.
- [c46] 46.The method of claim 40, wherein the step of applying said axial force comprises alternating a direction of said axial force for said plurality of magnet members that are adjacent to each other.
- [c47] 47.The method of claim 40, wherein the step of applying said axial force comprises sliding said plurality of magnet members with respect to each other such that at least one of said plurality of magnet members has a first end that is misaligned with a second end of another of said plurality of magnet members along said circumference, and wherein said at least one of said plurality of magnet members is adjacent to said another of said plurality of magnet members.
- [c48] 48.The method of claim 41, wherein the step of applying said

radial force comprises applying pairs of radial forces that are diametrically opposed to each other.

[c49] 49.The method of claim 40, further comprising the step of operably connecting said rotor to a stator.

[c50] 50.The method of claim 40, wherein the step of forming said plurality of magnet members comprises forming said plurality of magnet members having a sum of degree of curvature about said circumference greater than 355.5 degrees.

[c51] 51.The method of claim 40, wherein the step of forming said plurality of magnet members comprises forming said plurality of magnet members of equal size and shape.

[c52] 52.The method of claim 40, wherein the step of forming said plurality of magnet members comprises forming at least two of said plurality of magnet members having a first end with a first degree of curvature and a second end with a second degree of curvature, wherein said first degree of curvature is greater than said second degree of curvature.